CLAIMS

What is claimed is:

1. A system for measuring a height of an object comprising:

a first electromagnetic signal source for transmitting a first signal toward a first position on the object at a first angle;

a second electromagnetic signal source for transmitting a second signal toward said first position on the object at a second angle;

a first retro-reflection unit for reflecting a first single reflected signal toward said first position on said object, wherein said first single reflected signal is a portion of said first signal that reflects off of the object;

a first position sensitive detector to receive a first double reflected signal, wherein said first double reflected signal is a portion of said first single reflected signal that reflects off of said object and for generating a first output in response to said first double reflected signal;

a second retro-reflection unit for reflecting a second single reflected signal toward said first position on said object, wherein said second single reflected signal is a portion of said second signal that reflects off of said object;

a second position sensitive detector to receive a second double reflected signal wherein said second double reflected signal is a portion of said second single reflected signal that reflects off of said object and for generating a second output in response to said second double reflected signal; and

a processor, that receives said first and second output and generates a material independent signal representing at least one of a height of said first position and a slope of said

first position, said material independent signal being independent of the type of material comprising the object.

2. The system of claim 1 further comprising a spinning device for rotating the object to change said first position.

3. The system of claim 1, wherein said object is one of a thin film disk and a substrate.

4. The system of claim 1, wherein said object is a silicon wafer.

5. The system of claim 1, wherein said object is an optical component.

6. The system of claim 1, wherein said first and second electromagnetic signal sources are lasers.

7. The system of claim 1, wherein said material independent signal is generated without said laser and said position sensitive detectors contacting the object.

8. The system of claim 1, for measuring the height of said object at the first position wherein a slope is ninety degrees, said slope representing the change in height between the first position and an adjacent position on the object.